PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF
WARFIELD T. LONGCOPE, M.D.,
DIRECTOR OF THE AYER CLINICAL LABORATORY, PENNSYLVANIA HOSPITAL,
ASSISTED BY
G. CANBY ROBINSON, M.D.,
CLINICAL PATHOLOGIST TO THE PRESBYTERIAN HOSPITAL, PHILADELPHIA.

The Pathogenesis of Rabies.—Among the curious phenomena of rabies are the great length of incubation period (two weeks to two years) and the fact that only a small percentage of people bitten by rabid animals develop the disease (probably less than 10 per cent.), and yet when once developed, the outcome is invariably fatal. In this connection PALTAUF (*Wien. klin. Woch.*, 1909, xxii, No. 29) observed that the medullas of four people bitten by mad dogs, but dying of an intercurrent disease, produced rabies in rabbits, though no signs of rabies were apparent in the patients at any time. Two died of delirium tremens, one of pulmonary embolus, the fourth of encephalomalacia. All had been bitten within three weeks, and had received less than six injections of antirabic serum. In the case of four other people, bitten by rabid dogs, and dying of an intercurrent disease, who, however had undergone a complete Pasteur treatment, the injection of the medulla into rabbits was negative. From these observations, Paltauf deduces that the virus of rabies in the human organism is for the most part gradually weakened and destroyed without the formation of rabicidal bodies, so that in only 6 to 10 per cent. of the cases does it survive and cause symptoms. In each case, however, the patient undergoes a latent form of the disease, and their organism contains the etiological factor, whatever that may be. In the second group, however, after the immunization from the Pasteur treatment, rabicidal bodies are developed in the human organism and the infectious agent is actually obliterated.

Changes in the Hypophysis Cerebri during Pregnancy.—The morphological changes in the anterior lobe of the hypophysis during pregnancy, first observed by Comte in 1898, are discussed in great detail by ERDHEIM and STUMME (*Ziegler's Beiträge*, 1909, lxiv, 1) in 126 pages with fifteen excellent illustrations. In the normal histology of the anterior lobe, they recognize three kinds of cells: (1) The eosinophilic, which are the most numerous and usually occur in the outer circle of the alveolus; (2) the basophilic, which with the eosinophilic constitute the chromophile cells; (3) and least numerous, the chief or chromophobe cells, usually lying in the centre of the alveolus. In pregnancy, these latter cells increase enormously, so that the chromophile cells, which remain the same, are completely overshadowed. They also change in character from round nuclei, with very scanty, ill-defined protoplasm, to large, pale, oblong nuclei, surrounded by considerable, well-staining protoplasm that occasionally contains vacuoles. In this characteristic form, called "pregnancy cell," they remain until the puerperium, when they undergo involution and either disappear or return (by vacuolization of the protoplasm) to the original chief cell. These, however, remain more numerous than at first, so that the hypophysis of a multipara can be distinguished by an experienced observer from that of a nullipara by histological examination. The whole gland, during pregnancy, increases in size (posterior lobe remaining unchanged), the main growth being toward the side, as the anteroposterior diameter is limited by the dorsum sellæ. The average weight of a nulliparous gland was found to be 61.8 cgm., of a primiparous, 84.7 cgm.; of a multiparous, 106 cgm. Clinically, some of the symptoms of pregnancy may be explained by these changes. The bloated face, thick lips, and enlarged hands (compare with akromegaly) may be due to the same cause, that is, hypersecretion of the hypophysis.

In this connection, a case reported by von Reuss is most interesting (*Wien. klin. Woch.*, 1908, No. 31). Bitemporal hemianopsia occurring during pregnancy, and disappearing during the puerperium, was thought to have been caused by the pressure of an enlarged hypophysis upon the optic chiasm.

The Influence of Cardiac Insufficiency on the Disposition of the Blood in the Organs.—H. C. THATCHER (*Deut. Archiv f. klin. Med.*, 1909, vol. xcvii) has possibly explained the rather paradoxical findings of Lowi, who showed that in states of cardiac decompensation, when the venous system was greatly engorged, the arterial pressure might even be raised. Thatcher's experiments consisted in determining the changes of volume of the various organs by means of an oncometer when sudden cardiac insufficiency was produced. This condition was produced by means of a small balloon introduced through the right jugular vein in a collapsed condition into the right auricle or inferior vena cava. By sudden dilatation of the balloon almost complete block of the returning venous blood was effected. Enormous engorgement of the liver at once followed. The liver was found capable of distending to such a degree that an amount of blood, amounting to one-third to one-fourth of its own weight, could be accommodated. The brain also showed a considerable increase in volume, but not so marked as the liver. The spleen, intestines, kidneys, and extremities, on the other hand, all showed a distinct decrease in volume. More complete investigation of the kidney indicated that with this organ the decrease in size was due to a contraction of the arteries, following the arterial anemia resulting from the venous block. This arterial contraction was so great that notwithstanding the venous engorgement of the organ its volume was diminished. The brain and liver, organs which are well known to have weak vasomotor mechanisms, followed the curve of the venous pressure; whereas, the kidney, spleen, intestines, and extremities, with their active vasomotor apparatus, adapted themselves to the sudden arterial anemia by means of powerful vasoconstriction. The nervous control of this action, Thatcher believes to be largely central, because when the nerves of one kidney were cut the organ did not contract as markedly as its fellow. Blood pressure curves were made with all the experiments, and were of great interest. With the first shock of shutting the right heart the systemic pressure fell abruptly.